

Fig. 1

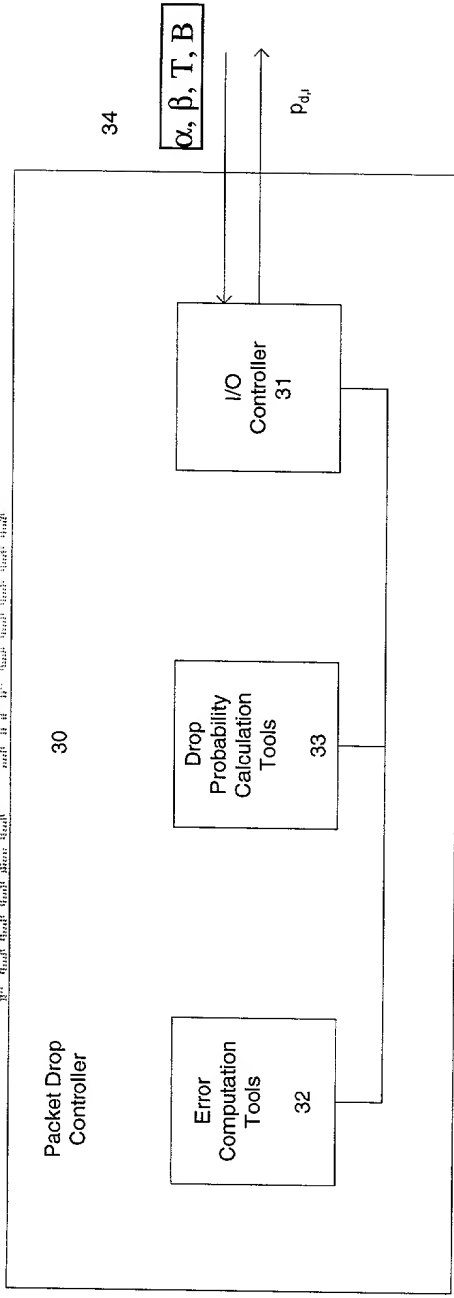


Fig. 2(A)

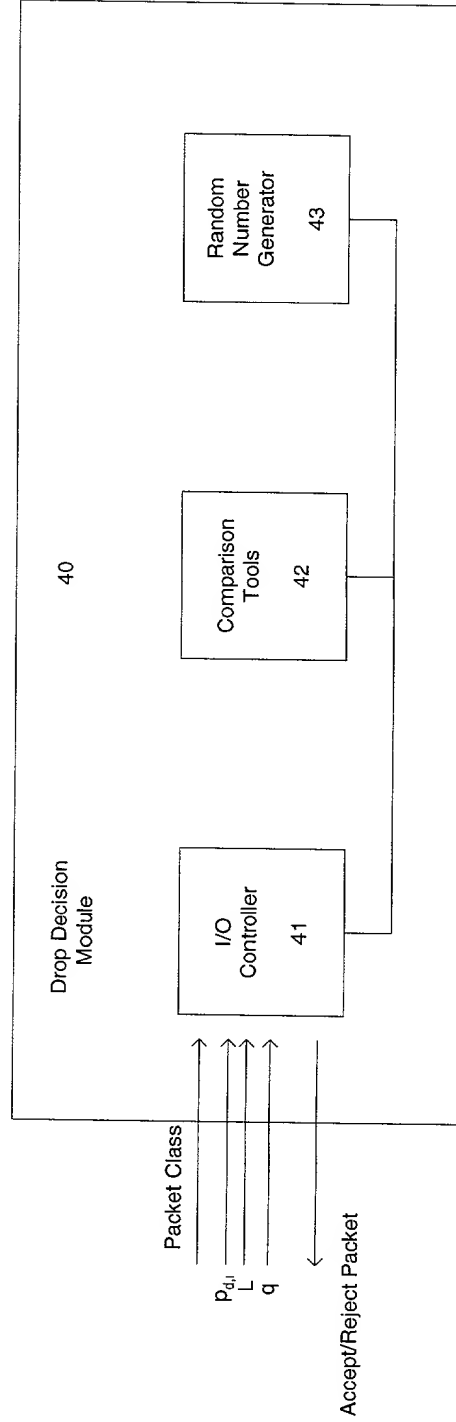


Fig. 3(A)

FIG. 3(B) is a block diagram of a Drop Decision Module 140. The module includes an I/O Controller 141, Comparison Tools 142, and a Count Mechanism 143. The I/O Controller 141 receives Packet Class information (D<sub>1,i</sub>, L, q) and outputs an Accept/Reject Packet signal. The Count Mechanism 143 is connected to the I/O Controller 141 and Comparison Tools 142.

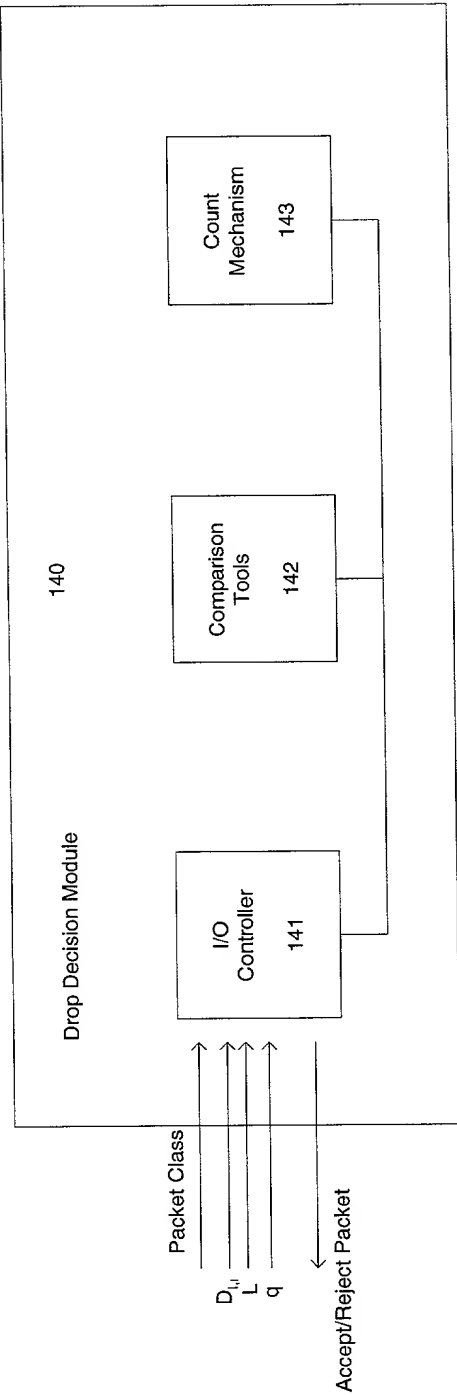


Fig. 3(B)

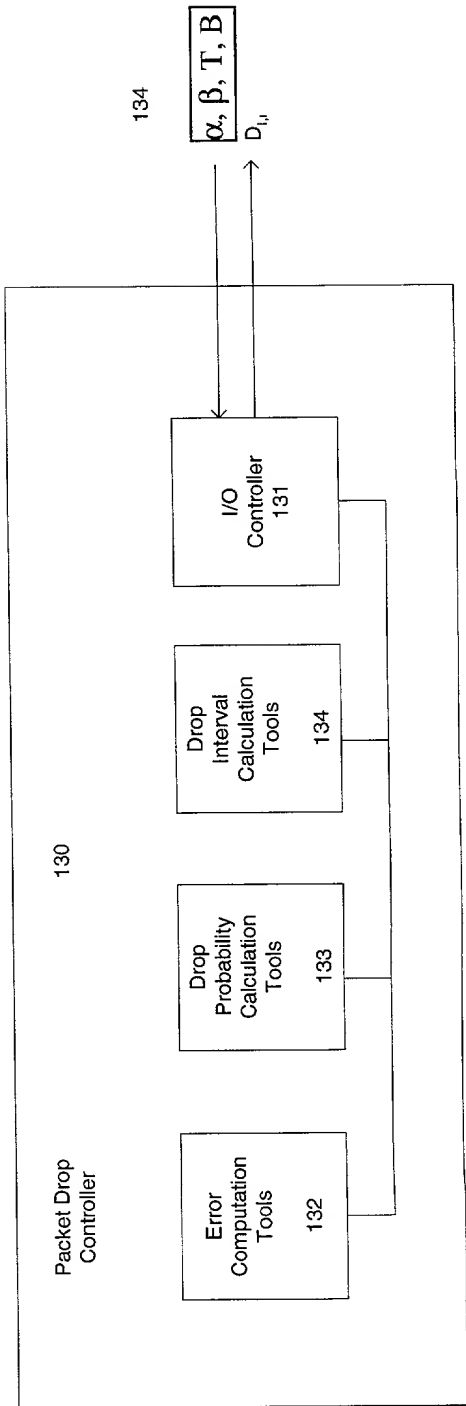


Fig. 2(B)

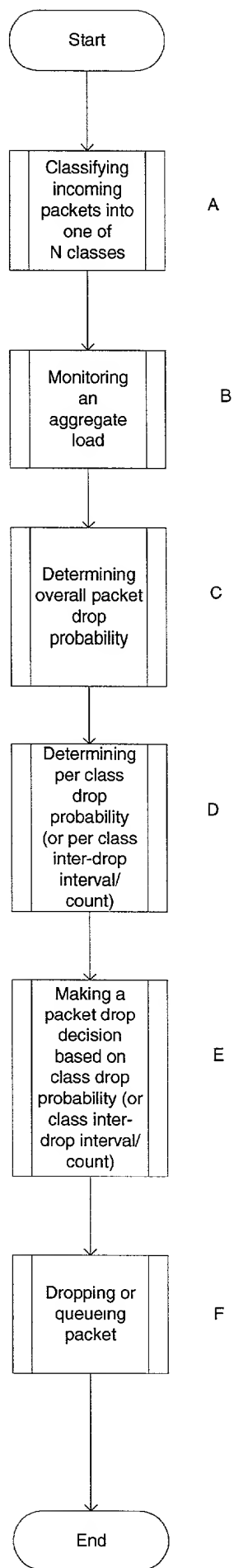


Fig. 4

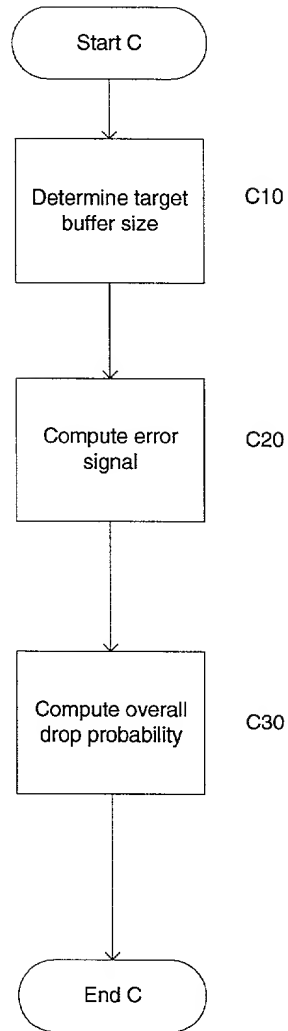


Fig. 5

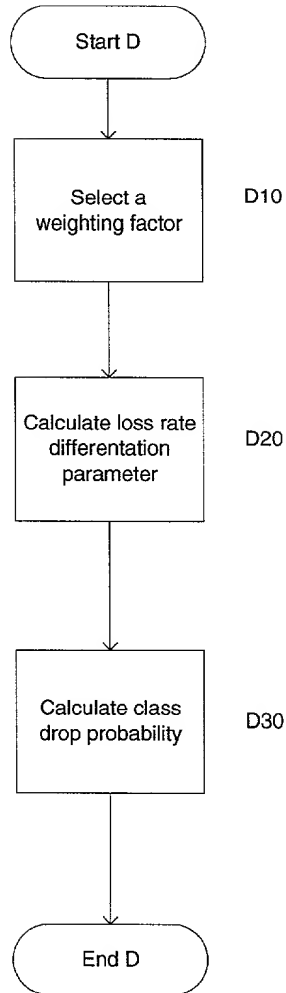


Fig. 6(A)

FIG. 7(A) is a flowchart illustrating a packet dropping process. The process starts with an oval labeled "Upon arrival of a packet, start". This leads to a rectangle labeled "Receive 'no-drop' threshold" with the label "E10" to its right. From there, the flow goes to a diamond labeled "actual queue size < 'no-drop' threshold?" with the label "E20" to its right. If the answer is "yes", the flow goes to a rectangle labeled "Queue packet F20". If the answer is "no", the flow goes to a rectangle labeled "Generate random number  $0 \leq p_r \leq 1$ " with the label "E30" to its right. From there, the flow goes to a diamond labeled "random number  $\leq$  packet class drop probability" with the label "E40" to its right. If the answer is "yes", the flow goes to a rectangle labeled "Drop packet F10". If the answer is "No", the flow goes to the "Queue packet F20" rectangle. Both the "Drop packet F10" and "Queue packet F20" rectangles lead to an oval labeled "End".

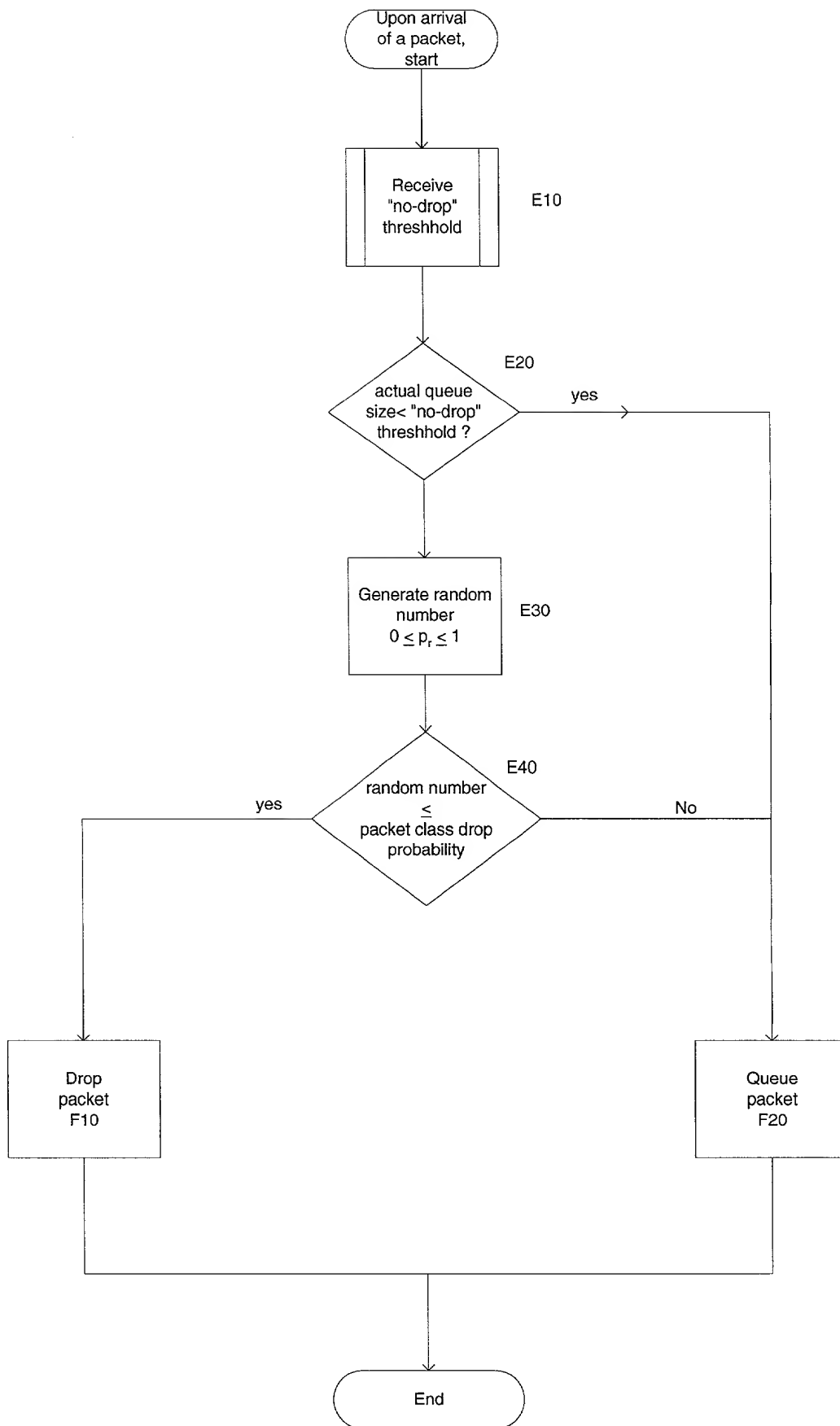


Fig. 7(A)

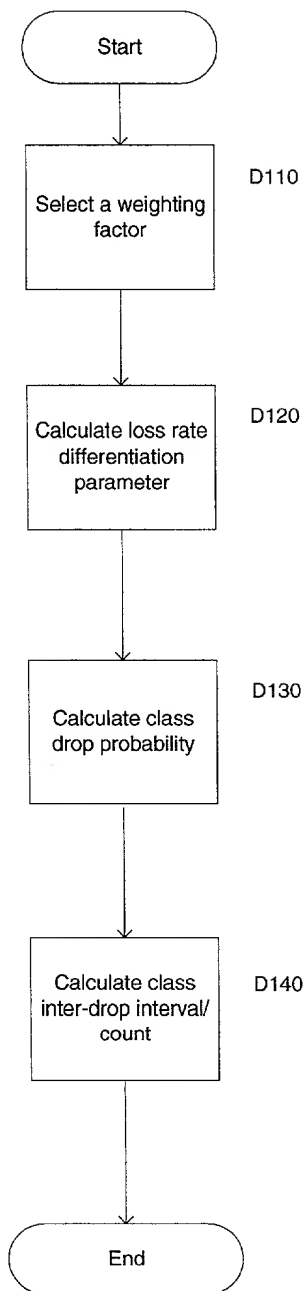


Fig. 6(B)

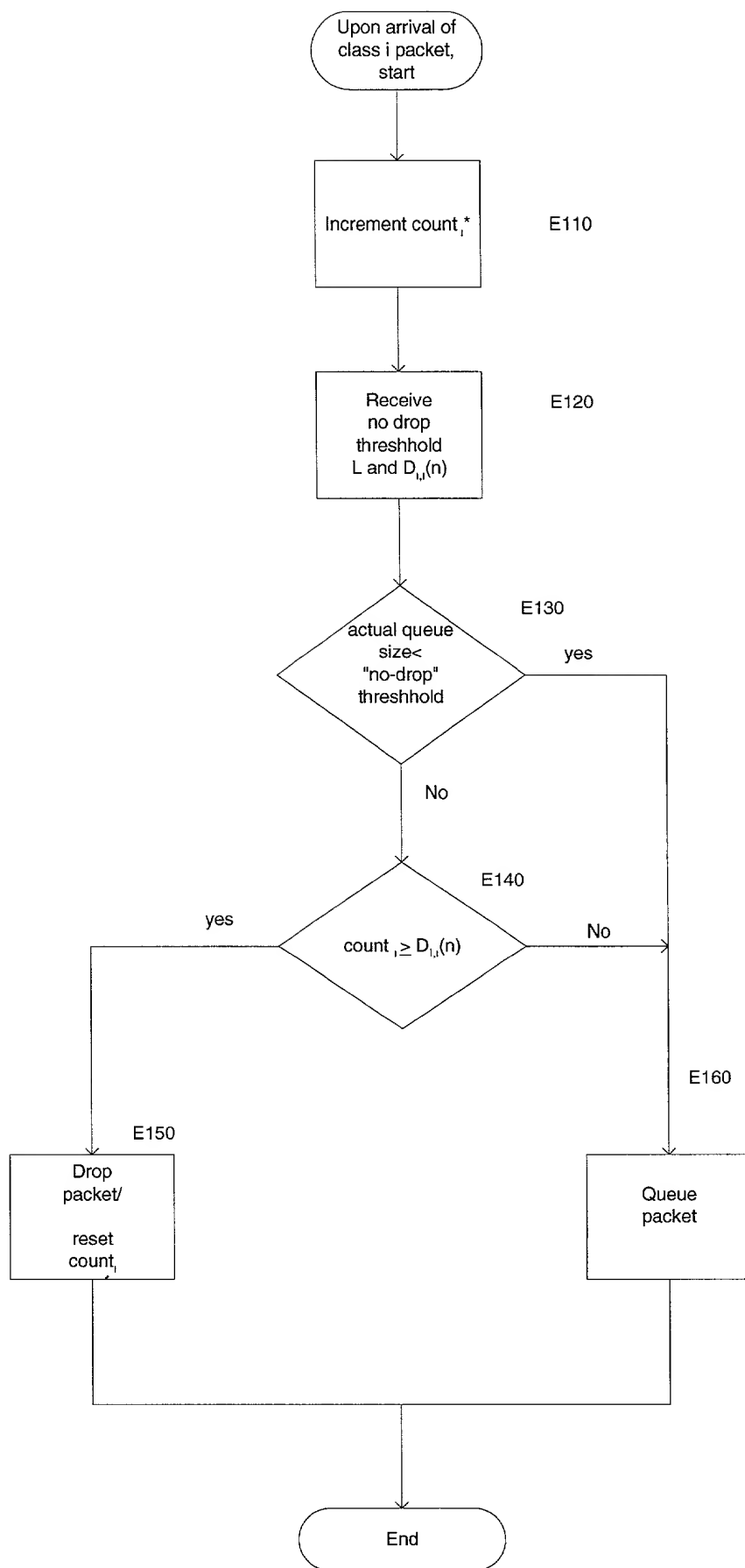


Fig. 7(B)

\*count<sub>i</sub> is initialized to zero before first packet arrived